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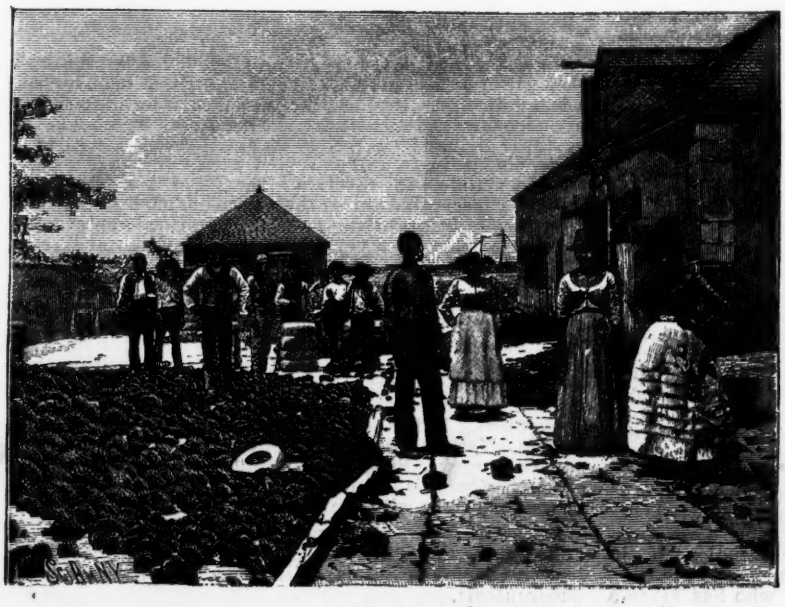
# THE SPONGE FISHERIES OF THE BAHAMAS.

BY J. F. COONLEY.

THE sponge fisheries of the Bahamas cover a large extent of territory, give employment to about six thousand men and boys, and are a source of revenue to the colony larger than any other industry pursued there. There are no seasons of the year but sponges may be taken, and are taken, by the men engaged in the pursuit. Sponges are always plenty at one place or another around these islands. They are always growing, and the supply is never short if they are sought for in the right localities. There is also always a lively demand for good sponges, and at prices that are not liable to change materially from year to year. The quantity shipped from these islands during the year 1890 was 623,317 pounds, the local value of which amounted to $31,500. I have often asked this question: What becomes of all the sponges? The immense quantities sent from here seem more than enough to supply the world, yet outside of the sponge-producing region we see very few, if any, going to waste. Whatever becomes of them, the demand is about the same from year to year, the supply never fails, and prices maintain a very even scale.

Clipping Sponges.



A Sponge Yard.

There are about 550 schooners and sloops of from 5 to 20 tons and about 2,500 open boats engaged in the fisheries, giving constant employment to the 6,000 men and boys engaged. These employees are all colored, mostly natives of the islands, and follow this industry all their lives; in most instances commencing as boys, growing up in it to manhood, and continuing at it as long as they are able to stand the fatigue and labor. A number of small open boats besides those attached to the vessels accom-

pany the crafts. The owners of these give a share of the proceeds of the sponge they obtain to the owners of the vessels for towing them to the sponging grounds and allowing them ship room. The sponge they obtain is kept separate from the ship's cargo.

The method of obtaining the sponge from the sea bottom is by a staff with hook at the end, by which the sponge is torn from its place of attachment. At greater depths than can be reached by the hook, the sponger will sometimes dive for them, but this is seldom resorted to. The water glass is an indispensable article in locating the sponge on the sea bottom. It is a wooden cone with a glass set in one end and open at the other. It is about eighteen inches long, and by placing the glass end just beneath the surface of the water and looking in the top the operator has a clear view of the bottom of the sea, and with his staff in the hand not engaged in holding the water glass, he thrusts the staff down. When he sees and selects the sponge, he hooks it or tears it from its native bed.

The sponge, when taken from its resting place, has not the same appearance as when prepared for use. All its fine qualities are hidden. It is heavy, and contains a matrix of dark gelatinous matter with a dense external pellicle. This gelatinous substance is got rid of by maceration and washing, and the residuum is our well-known companion of the bath. On placing any of these forms of sponge, before cleaning, in a tub of salt water, and with the aid of a lens observing the central portion of the body of the sponge, one will notice something like a fine woven cobweb projecting from the central part outward, from which refuse matter may be seen issuing. Looking more attentively, an immense number of very small pores will be seen, through which the food, infusoria and other organisms, is taken. The more powerful the lens the more wonderful the internal structure is shown to be, and the more surprising will the operations of nature in this particular case appear. With a powerful glass one can easily perceive the flagella or whips lashing the water, producing the inflowing and outflowing currents. Without the use of a magnifying power the sponge would appear as a dead, inert mass.

The propagation of sponges, the method by which they increase, is not only interesting, but is certainly very curious. At certain periods there will be formed projections from the surface, yellowish-looking buds, which grow until they detach themselves, when they are driven out by the outward flow caused by the flagella or whips lashing at the water. These yellowish-looking buds then appear as helpless atoms of jelly. But this is not the case. These tiny germs or atoms have a motion that we would not suspect. With a lens we see the whole of these minute objects covered with minute cilia, which vibrate and propel it through the water until, arriving at sufficient distance from the place of its birth, it settles down on the bottom, loses its cilia, and grows—becomes a sponge.

After the taking of the sponge from its native bed they are all assorted and the different kinds and grades separated. They must be trimmed, or clipped, as it is termed, baled, pressed, and encased in canvas to ship.

The sponging grounds of the Bahamas are well worth visiting. There is scarcely a more beautiful or interesting sight than a view in the clear limpid waters surrounding these sea-girt islands on a warm day. The marine flora, the various forms of coral scattered in rich profusion at the depth of a few fathoms, is something marvellous for its varied and extreme beauty, and is not surpassed in any part of the globe. In a tideway of medium flow it can be viewed to the best advantage. The graceful, undulating sea fans, with a variety of sea anemones with the colors of the rainbow, the branching coral, some fashioned, one would almost believe, with human skill and artistic taste, with the most beautiful colored fish sporting in these fairy grottoes, the water being so transparent that the bottom can be distinctly seen at a depth of over 20 fathoms, all combine to make a vision which for beauty, novelty, and variety is very fascinating, and once seen will not easily be forgotten.

For information in reference to the growth, propagation, and habits of the sponge, also for statistics, etc., in this connection, I am under many obligations to the Hon. Judge Camplejohn, of Nassau, N. P., who has made a study of this subject for years. The local price of sponge ranges from 25 cents to $1.20 a pound, the fine wool sponge being the most expensive, while the yellow and glove sponges are the cheapest.—*Scientific American.*

### Iodeosine as a Delicate Indicator of Alkaloids.

In our last number we published an abstract of a paper by F. Mylius and F. Foerster on a new indicator (see p. 352). The authors have quite recently sent a communication on the same subject to the *Chemical News* which gives additional information, and which, moreover, points out the proper way in which the indicator is to be used, viz., causing its tint to pass into an ethereal layer. The authors write:

Among the artificial colors which have recently come into use [as delicate indicators] are the eosines, as their halogenous power probably depends on their high proportion of halogen. Their fundamental substance, fluoresceine, as also ordinary eosine, has been introduced into volumetric practice. Our experiments have shown that iodeosine, or erythrosine, is especially adapted for the determination of small quantities of alkali, but under peculiar conditions which render a preliminary investigation of its properties necessary.

Iodeosine, or erythrosine, has the composition $C_{20}H_8I_4O_5$; it is a commercial product, and is especially used in cotton dyeing and paper staining.

The pigment, as supplied by the Baden Aniline Works, is a brick-red powder, soluble without fluorescence, but with a rose color in dilute alkalies. From this solution it is reprecipitated by supersaturation with acid. The commercial preparation contains as impurity small quantities of matters almost insoluble in ether and in a dilute solution of pyridine. The alkaline solution of these impurities has a violet-blue tone. For its purification the commercial substance is dissolved in aqueous ether, and removed from the filtered solution by shaking out with a dilute soda lye; from the alkaline solution the brick-red sodium salt is precipitated by a stronger soda lye. The salt is filtered, washed with spirit, and recrystallized from hot alcohol. As the solution cools it is obtained in well-developed, almost rectangular tables, with a green surface color, whilst the impurities remain in the mother liquor. Pure iodeosine has a decidedly lighter color than the commercial product; it is almost insoluble in absolute ether, benzol, petroleum ether, chloroform; more readily soluble in acetone, in alcohol, and in aqueous ether. In aqueous alkali the purified coloring matter dissolves, as it might be expected, with a more yellowish tone than the crude product. Supersaturated solutions can be obtained by shaking up the recently precipitated amorphous coloring matter with ether. If the solution is allowed to stand, the excess of color is deposited in small orange crystals of a rhombic form.

Iodeosine has not hitherto been employed in alkalimetry; if it is used in the ordinary manner, it behaves as a bad indicator. If to an alkaline solution we add a trace of iodeosine and neutralize with normal hydrochloric acid, the change from rose to orange takes place with undesirable tardiness, and a decided excess of acid is necessary to complete the reaction. The use of this color as an indicator is possible only if the titration is effected *in presence of ether in a shaking vessel.* The neutral point can then be distinguished very sharply, as the slightest excess of acid on shaking causes the trace of eosine present to pass from the aqueous into the ethereal stratum. The aqueous liquid then appears colorless.

*Titration with Millenormal Solutions.*—In the determination of large quantities of alkali, effected with normal and decinormal solutions, there is no cause to make use of the process just mentioned, the employment of the ordinary indicators in aqueous solutions being then more convenient. In the ordinary manner we may, as is well known, effect titrations with centinormal solutions with some accuracy. But this is the limit. By means of *iodeosine and ether* it is possible to effect titrations with millenormal solutions with the greatest distinctness.

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**Bromides and Phthisis.**—M. Féré has found that saturating a person or animal with bromides predisposes to tuberculosis.

[ORIGINAL COMMUNICATION.]

## ACETANILIDE FOR THE PRESERVATION OF HYPODERMIC SOLUTIONS.

BY THOMAS J. KEENAN.

Of the various chemical bodies known to exert an inhibitory action on the development of the fermentative and fungoid growths which occur in simple solutions of the alkaloids prepared for hypodermic use, and in solutions of organic chemicals generally, acetanilide, from the consideration of its non-irritating properties and its efficiency in weak solution, in my opinion easily takes first place.

Glycerin, alcohol, salicylic acid, boric acid, chloroform, and a host of others, chiefly derivatives of the aromatic hydrocarbon series, have been at different times strongly recommended for their individual properties, and used with favorable results; but experience has demonstrated that all have their objectionable features.

Glycerin is seldom used on account of its slightly irritating properties and the increase of density which follows its addition.

Alcohol is irritating and liable to cause precipitation.

The chief objection to the use of salicylic acid, apart from its readiness to react with other chemicals, and one which may be overcome at the discretion of the pharmacist, is the strength in which it is directed to be used.

This is stated by the compilers of the Addendum to the British Pharmacopœia, and by other official bodies, to be a saturated solution representing about 1 grain in 1 fluidounce, thus affording a concentration considerably in excess of the amount actually required; solutions prepared with it in the proportion of ½ grain in 1 fluidounce keeping equally well with the stronger ones, besides being less liable to cause the precipitation which sometimes takes place in concentrated solutions of morphine or similar bodies on long standing.

Boric acid is only suitable for a limited application, being, nowever, especially well fitted for the preservation of cocaine solution when the latter is intended for local application.

Chloroform, in the form of Aqua chloroformi (N. F.), is generally considered the most useful of any of the preservatives yet proposed, and is perhaps more widely employed than any other in the list here given. It is non-irritating and convenient of use, besides being free from the danger of reacting with the substance it may be added to. It is, however, less reliable, in my opinion, from its evanescent nature, than either salicylic acid or acetanilide, particularly when evaporation is assisted by the frequent removal of the stopper in extensive dispensing.

NEW YORK, October 12th, 1891.

## A NEW ALCOHOL OR BENZIN LAMP.

GUSTAV BARTHEL, of Dresden, has put on the market two improved burners, one for alcohol and another for benzin, which may be used like Bunsen burners, but have an advantage over the latter as they are capable of giving a higher temperature. The accompanying cut illustrates the alcohol lamp. This is made of metal, has a lateral capped orifice for filling, and bears a central tube, closed on top, which carries a solid wick. This is not itself ignited, but only serves to draw up the volatile liquid from the reservoir. To the wick tube is attached a second tube, the burner tube proper, which receives the vapors from the wick. The burner tube contains a wire diaphragm which can be raised or lowered by means of the screw shown in the cut, whereby the size of the flame can be regulated.

When the lamp is to be used, a lighted match or other source of heat is applied to the wick tube, so as to drive some alcohol vapor into the burner tube, where it is then ignited. It will then continue to draw up alcohol vapor of its own accord.

The lamp works very efficiently. One litre of water

can be raised by it from 15° C. to 100° C. in eight and three quarter minutes with an expenditure of 26 Gm. of alcohol.

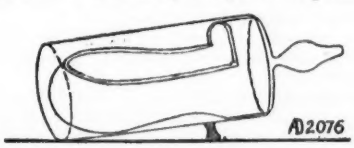
[It is best to use a low-grade alcohol of about 75 to 80 per cent in such lamps, as stronger alcohol evaporates too rapidly without producing any advantage.]

The benzin burner is similarly constructed, but has some special features required by its greater inflammability.

## NEW WEIGHING BOTTLE.

THE ordinary form of weighing bottle, with ground-in stopper, has the disadvantage that when a finely powdered substance is emptied out of it a portion is liable to adhere to the ground portion of the neck, and, upon reinsertion of the stopper, to be driven out and lost. To remedy this the author proposes a weighing bottle of the form illustrated.

The bottle has a little foot which supports it in an inclined position. The hollow, scoop-like expansion of the




stopper allows the removal of its contents to be effected without a chance of touching the ground portion of the bottle.

The new form is very convenient for the determination of hygroscopic moisture; the bottle and its contents are placed in the water bath and the stopper is slightly withdrawn. Since the substance is exposed in a thin layer, drying takes place with great rapidity.—O. MANGOLD in *Zeit. f. angew. Chem.*, 1891, 441.

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**A Drug Explosion.**—A student of pharmacy in Hesse was called upon to put up a prescription containing a 20 per cent solution of chromic acid, salicylic acid, and water. He put the crystals of chromic acid directly into the alcohol, whereupon an explosion took place, and the unfortunate student was severely burned in the eyes.

**An Antiseptic Adhesive Pomade**—The following is employed in the Hôpital Saint-André, in place of adhesive straps, to keep the protective dressings in close apposition to the skin:

| | |
|---|---|
| ℞ Oxide of Zinc | gr. x. |
| Chloride of Zinc | gr. xlv. |
| Gelatin | ʒ x. |
| Water | ʒ ij. |

It is also found very serviceable in dressing wounds of the face.

### Tests of Purity of Olive Oil.

We have received from Messrs. James A. Hayes & Co., Boston, a pamphlet entitled "An Examination as to the Reliability of Certain Tests for Determining the Purity of Olive Oil. By Professor S. Canizzaro, Vice-President of the Senate of Italy, and Dr. G. Fabris, Analytical Chemist of the Italian Customs," which forms an important contribution to our knowledge of there actions of olive and other oils. The inquiry and investigations were caused by the fact that a certain invoice or sample of olive oil had been declared adulterated by Dr. B. F. Davenport, of Boston, on the strength of certain reactions hitherto much relied on for showing the presence of foreign oils in olive oil, one of the reactions being given officially in the U. S. Pharmacopœia. No question is raised as to the correctness of Dr. Davenport's observations, since Dr. Fabris, who made all the experiments, obtained the same color reactions as the former. But being in a position where he could secure an unlimited number of samples of undoubtedly genuine olive oil from the principal centres of production, he had better facilities for conducting the investigation and testing the reactions themselves critically than any chemist in this country.

The following is an abstract of the contents of the pamphlet:

In order to establish how far two tests—the one by concentrated sulphuric acid and the other by the basic subacetate of lead—which Dr. Bennett F. Davenport, of Boston, U. S., has employed in order to determine whether a reputed olive oil be pure or not, I was instructed by Professor Stanislao Canizzaro to carry out a series of comparative experiments on oils with the above and other processes having a like object.

These experiments were made upon olive oils and seed oils, some of which had been actually made by myself or in my presence, and others had been procured from different sources. The oils thus examined may be classified and described as follows:

1. Five samples of Tuscan olive oil made in my presence.
2. Four samples of olive oil made in the presence of the Italian Minister of Agriculture.
3. Sixteen samples prepared by Dr. Fabris himself.
4. Nineteen samples, all absolutely genuine, procured from various localities.
5. Ten samples of different origin, furnished by Messrs. S. Rae & Co., of Leghorn, for whom the present investigation was made. One of these samples was stated to be from the same oil which they exported to the United States in 1890, and which had there been declared spurious.

#### THE SULPHURIC ACID TEST.

Dr. Davenport, in a letter to Messrs. S. Rae & Co., dated Boston, September 27th, 1890, says: "The standard for olive oil, as laid down by our State Anti-Adulteration Law, is that of the United States Pharmacopœia, a work which you doubtless already have or know of.

"The principal point in which some samples of reputed olive oil differ from that standard of quality and purity is, that when a few drops are let fall, as directed, upon the surface of strong sulphuric acid, a *dark-brown* color is developed almost immediately, which should not be within three minutes. The presence of some other than pure olive oil is thus indicated."

It is, therefore, a question of observing the color an oil will assume when in contact with concentrated sulphuric acid as a reagent; this is practically the same test that Heydenreich proposed so long back as 1841. The latter, however, prescribes that a drop of sulphuric acid at 66° B. should be let fall upon 8 or 10 drops of oil placed in a watch glass standing upon a sheet of white paper, and to observe the color produced both when the oil is at rest and when shaken.

Dr. Davenport, instead, follows the directions of the Pharmacopœia of the United States, which are as follows: Olive oil: "If 5 drops of the oil are let fall upon a thin layer of sulphuric acid in a flat-bottomed capsule, no *brown-red* or *dark-brown* zone should be developed, within three minutes, at the line of contact of the two liquids." While as regards cottonseed oil, in the same authority it is stated that "Concentrated sulphuric acid instantly renders it dark *reddish brown*."

In a small, flat-bottomed porcelain capsule I placed as much chemically pure sulphuric acid at 66° B. as to form a surface of the size of a silver dollar; upon this I dropped from a pipette 5 or 6 drops of oil. The oil gradually spread itself out so as to form a film upon the surface of the acid, in doing which just three minutes passed. I observed the color which developed itself gradually as the oil spread itself slowly over the surface of the acid.

In order to decide whether the conditions under which the experiment is carried out may not have some influence upon the coloring produced, I repeated the same experiment, but varying somewhat the conditions. Thus I observed that if 10 or 12 drops, instead of 5, were allowed to fall upon the acid, a tint tending to *green* was produced in genuine olive oils which during the first experiment had not changed color.

In general I observed that when much oil is added a more intense color is produced. On the other hand, if 1 or 2 drops of concentrated sulphuric acid are dropped upon 10 drops of oil, according to Heydenreich's formula, in olive oils, a *greenish* tint is produced, which becomes more intense if more acid be added, and particularly so if the mixture be shaken.

I also made the same experiment using chemically pure sulphuric acid of 60° B. In this case the oil spreads itself very slowly over the surface of the acid, and it does not assume any color for a considerable time.

When, instead, I employed the sulphuric acid of commerce, the colors which resulted to the different olive and seed oils were identical with those produced by the chemically pure sulphuric acid of 66° B., only more intense.

The same phenomenon is observable if sulphuric acid of 66° B. containing some nitrous acid be used; that is to say, the color indications are rather more intense than in the case of the perfectly pure acid.

#### SUBACETATE OF LEAD TEST.

On page 204 of the U. S. Pharmacopœia is to be found the formula for preparing *Liquor plumbi subacetatis*, which has been adopted by Mr. S. S. Bradford, Ph.G., as a test for olive oil.

Mr. Bradford states that this solution, added in equal volumes, "possesses the peculiar property of saponifying at once when shaken in the cold with pure olive oil."

"Now, if a sample tested contains any cottonseed or other oil, saponification will not take place, no matter how long it is allowed to stand or how much it may be shaken; if there is any cottonseed oil in the sample a *red* color will be produced."

Dr. Davenport, in the letter before mentioned to Messrs. S. Rae & Co., says that some samples of olive oil, "when shaken up with a like volume of *Liquor plumbi subacetatis* and allowed to stand for some twelve hours, develop the *orange-red* color so characteristic of cottonseed oil. Standard olive oil will not develop any color at all, and will, moreover, form a much more perfect emulsion with the lead solution than most other oils. The above lead test color I consider very reliable down to a very small percentage of cottonseed oil."

I prepared this reagent, scrupulously following the directions above given, and I tested its action upon the various samples of olive and seed oils in the following manner:

Into a test tube 16 Cc. long and with an external diameter of 18 Mm. I put 10 Cc. of oil and 10 Cc. of the reagent. I then shook the tube for about two minutes, and afterwards allowed it to rest, observing the color indication and the appearance of the contents, both immediately and on the expiration of twelve hours.

I experimented also with another reagent, somewhat

similar to the foregoing, which has been communicated to me by Messrs. S. Rae & Co., as follows: "Prof. Robert Meade Smith, University of Pennsylvania, suggests the following test for detecting cottonseed oil in olive oil when present to the extent of over 5 per cent:

"Agitate 10 Cc. oil and 10 Cc. of ethylic ether in a test tube, add 5 Cc. of strong solution of neutral lead acetate and then 5 Cc. ammonium hydrate solution, and agitate again. If cottonseed oil is present an *orange-red* color is produced, particularly in the upper layer."

I now proceed to describe the methods followed by me in applying the other chromatic tests and processes which served for comparison with those already recorded:

### HAUCHECORNE'S TEST.

Into a test tube place 6 Gm. of the oil and 2 Gm. of a mixture of 3 parts of chemically pure nitric acid and 1 of water. Shake the whole for about two minutes, and watch the color of the mixture. Then place the test tube in a bath of boiling water, leave it there for not more than fifteen or twenty minutes, and again observe the color.

Olive oils which are perfectly pure become decolorized or else turn pale-green after being shaken with the acid and before being heated; after heating they resume their natural color—occasionally they are somewhat lighter. But they should not take a color tending to orange.

Only old oils which have suffered by long keeping may take a color more or less tending to orange. Moreover, olive oils treated by this test become completely solidified after twelve hours.

Seed oils, after being agitated with the acid and before being heated, either become colorless or change to a yellowish-red or red. When heated they rapidly change to *orange-yellow* in the case of peanut oil, or to dark *red-brown* in the case of drying oils.

Mixed oils assume graduated colors, according to the proportion of seed oil present in the olive oil.

### BRULLÉ'S TEST.

Place in a test tube 1 Gm. of albumen, perfectly dry and divided into very fine powder, with 2 Cc. of nitric acid (prepared in the same way as for the Hauchecorne test) and 10 Cc. of the oil. Heat uniformly, without agitating, and when the acid begins to boil incline the tube and agitate cautiously, continuing to heat the tube until the albumen is seen to be dissolved, which takes place after a few seconds of ebullition.

Then the color of the oil is observed, which should not be sensibly changed in pure olive oils; at the most it may become a little paler, while it will vary from an *orange-yellow* to *brown* for the different seed oils, and graduate between these in the case of mixed oils. After this treatment also, olive oils solidify in the course of some hours.

### BECHI'S TEST.*

This test is now recognized by long experience as very specific for discovering the presence of cottonseed oils when mixed with olive oil. It is carried out as follows:

Prepare two solutions, viz.:

No. I.

| | |
|---|---|
| Nitrate of Silver, in crystals | 1 Gm. |
| Alcohol, 98 per cent. | 200 Cc. |
| Ether | 40 Cc. |
| Nitric Acid | 0.1 Gm. |

No. II.

| | |
|---|---|
| Amylic Alcohol | 100 Cc. |
| Colza Oil. | 15 Cc. |

Ten cubic centimetres of oil, 1 Cc. of the silver solution No. I., and 10 Cc. of the solution No. II. are placed in a test tube and well agitated. Half of this mixture is poured into another test tube and kept as a standard for comparison. The first tube is then heated in a boiling-water bath for a quarter of an hour, and then the color indications are observed. Pure olive oil should *not* take a *brown* color; but cottonseed oil and mixtures of it with olive oil rapidly change to a *red-brown*, more or less dark.

* This test was communicated to us by Prof. E. Bechi in 1883 (see NEW REM., 883, 314). He has improved it since then, as given above.—ED. AM. DRUGG.

I must call attention to some precautions to be taken in order that the results may not be uncertain. The alcohol and the ether employed in making the solution No. I. must be chemically pure. The colza oil which enters into the solution No. II. must be previously filtered two or three times through paper, in a water oven at boiling point; 10 Cc. of the solution No. II., heated for a quarter of an hour in a water oven at boiling point with 1 Cc. of the solution No. I., should retain their natural color.

The oil to be subjected to the Bechi test should be filtered through paper once, and, in some cases, even twice, in a water oven at boiling point, because at times even perfectly pure olive oil will take a slight brownish tint under the Bechi test when not properly filtered; but this does not occur when it has been filtered in a hot water oven.

On the contrary, cottonseed oil and mixtures of it with olive oil retain the property of turning *brown* under the Bechi test, even after the hot filtration.

Above all, it is necessary to bear well in mind that cottonseed oil and the mixtures of it with olive oil will rapidly assume a brown color when heated in contact with this reagent, viz., after a few minutes' interval; while pure olive oils, which also occasionally turn slightly brown under this test before filtration, only do this after being heated for about a quarter of an hour in a hot water stove as described.

[The author does not seem to be aware that Bechi's test has been declared fallacious when applied to cottonseed oil which has previously been subjected to heat.—ED. AM. DRUGG.]

### MILLIAU'S TEST.

The reaction is analogous to Bechi's, and serves the same purpose, viz., to detect cottonseed oils.

Twenty Gm. of oil, placed in a porcelain capsule, are heated on a water bath, together with 30 Cc. of an alcoholic solution of caustic potassa (20 per cent of potassa in alcohol of 70 per cent), and shaken frequently until complete saponification takes place. The heating is continued for about fifteen minutes longer. Then about 250 Cc. of cold water are added, and the soap is decomposed by diluted sulphuric acid, taking care not to add too large an excess of the latter. Then about 10 Gm. of the fatty acids that have thus been separated, but which are not yet melted, are taken and dissolved in pure alcohol of 90 per cent in a test tube; next 2 Cc. of an alcoholic solution of silver nitrate (3 Gm. in 100 Cc. of alcohol of 90 per cent) are added, and the mixture heated, during fifteen minutes, in a water bath at 90° C.

In the case of pure olive oil, the solution itself, and the precipitate from it contained in the tube, exhibit no color. But cottonseed oil takes a dark-brown or chestnut color, and the mixtures in which it is present a brown color more or less dark, according as the cottonseed oil is present in greater or less proportion.

Pure olive oil may take a slight brownish tint, but only when the alcohol is not perfectly pure, and when the heating has been protracted beyond fifteen minutes. Cottonseed oil and mixtures containing it become colored as soon as they feel the action of the heat.

### SCHNEIDER'S TEST.

This is stated by Schneider to be specific for the oils of the Cruciferæ. It is made as follows:

Shake 5 Gm. of the oil with 10 Cc. of ether, add 20 to 35 drops of a saturated solution of nitrate of silver in alcohol, and shake. Then set it aside in a dark place.

After some time, either a precipitate is observable, or a brown color if a cruciferous oil is present. In the case of pure olive oil, neither color nor precipitate appears.

### BAUDOUIN'S TEST.

This is specific for oil of sesame, which has the property of imparting a crimson color to a solution of sugar in concentrated hydrochloric acid.

The reagent is made by dissolving 1 Gm. of powdered sugar in 100 Cc. of hydrochloric acid of specific gravity 1.180 at 15° C.

To 1 volume of this solution add 2 volumes of the oil, and shake well. After a few minutes set the test tube

aside, when the contents will separate into a lower, aqueous one, which will be crimson colored, and an upper, oily layer.

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Concerning these tests, and some others which are yet to be mentioned, the author makes the following statements as regards their application to samples of pure olive oil or other oils in his possession.

1. *Sulphuric Acid Test.*—Of fifty-four samples of olive oil, twenty-four gave no color indication, but remained of a light yellow color with a slight greenish tint during the time required for the drops of oil to spread over the surface of the acid (about three minutes). These samples, therefore, stood the test of the U. S. P.

On the other hand, nine samples turned to a dark-yellow, almost orange color, and the other twenty-one became deep orange or reddish-brown.

The seventeen samples of seed oils examined showed these colors more or less; the cottonseed oils were found to show them hardly any more than some samples of olive oil of known purity.

The sulphuric acid test, therefore, is of no value whatever, except when it gives an absolutely *negative* result.

2. *The Subacetate of Lead Test.*—This was found untrustworthy, since some samples of even confessedly genuine cottonseed oil (from the U. S.) failed to give any color reaction with the lead solution.

3. *Hauchecorne's and Brullé's Tests.*—These were found to give much more concordant results. Nearly all the samples of olive oil which would have been condemned as impure by the sulphuric acid or acetate of lead test, appeared to be genuine under the above-mentioned tests.

4. *Bechi's and Milliau's* tests always give negative results when applied to pure olive oil, if the test is carefully made as above described.

5. *Baudouin's* reaction is a specific one for oil of sesame, and Schneider's reaction one for oils of the Cruciferæ (mustard, etc.). Oil of olives containing more than 10 per cent of these oils will respond to the tests.

6. *Renard's test for peanut oil* is made by saponifying 10 Gm. of the oil with alcoholic potassa, decomposing the soap with hydrochloric acid, dissolving the fatty acid in 50 Cc. of alcohol of 90 per cent, precipitating with subacetate of lead, washing the precipitate, and then extracting it with ether until the oleate of lead is eliminated. The residue is then decomposed by hydrochloric acid, the fatty acid dissolved in 50 Cc. of warm alcohol of 90 per cent, and the solution allowed to cool, when arachic acid will crystallize out in scales resembling mother-of-pearl.

[Several tests, mentioned by the author, which were found unreliable, are omitted here altogether.]

7. *Iodine Number* (according to Hübl).—To determine this, the following solutions are required:

(*a*) Dissolve 25 Gm. of *pure* iodine in 500 Cc. of pure alcohol of 95 per cent and 30 Gm. of mercuric chloride in 500 Cc. of alcohol. Filter the latter, if necessary, then mix the two solutions and let the mixture stand twenty-four hours.

(*b*) A carefully prepared decinormal solution of sodium hyposulphite.

(*c*) A 10-per-cent solution of pure potassium iodide (free from iodate) in water.

(*d*) Gelatinized starch solution.

(*e*) Pure chloroform.

The determination is made as follows:

Weigh 0.2 to 0.3 Gm. of the oil into a bottle (provided with glass stopper) of about 200 Cc. capacity, and add 10 Cc. of chloroform for solution. Next add 20 Cc. of the solution of iodine, shake well, and set the bottle aside for two hours in a cool and dark place. In another similar bottle treat 10 Cc. of the same chloroform with 20 Cc. of the iodine solution, but without the oil, in a similar manner. After two hours add 15 Cc. of the solution of potassium iodide and 150 Cc. of water, and then determine the free iodine by the hyposulphite solution, using starch as indicator, in the usual manner.

The difference between the number of cubic centimetres of hyposulphite required to decolorize the free iodine, and the iodine originally added, represents the quantity of iodine absorbed by the oil, and this amount is then expressed as referring to 100 parts of oil.

According to Hübl and Moore the iodine number of olive oil is 82.8–83.0. But other analysts have found figures varying between 80 and 85.1. In most cases the number lies between 80 and 83. In one case Dr. Fabris found it anomalously low, viz., 75.23, but this oil was old and rancid. It is, however, not justifiable to condemn an olive oil which shows a high iodine number, if other tests show it to be genuine. But if an oil has an iodine number between 80 and 83, and complies with the other tests, it may be regarded as genuine. And the nearer the figure found is to 80 the more positive is the proof.

8. *Iodine Number of the Free Fatty Acids.*—This is a trifle higher than that of the oil itself, being about 81 to 84.

9. *The Saponification Number.*—This represents the quantity of potassium hydrate (KOH) in milligrammes required to saponify 1 Gm. of oil. It is determined by heating 2 to 3 Gm. of the oil, on a water-bath, with 25 Cc. of a solution of potassium hydrate—3 Gm. in the litre, made with pure alcohol—until complete saponification takes place, and then titrating the excess of alkali with half-normal hydrochloric acid, using phenolphthalein as indicator. Another portion of 25 Cc. of the alcoholic potassa solution (without the oil) is also titrated with the acid. The difference between the two shows the amount of potassa which has entered into combination.

The saponification number of olive oil varies between 191 to 196, or, according to G. Fabris, between 186 and 190, and is usually about 190. As compared with cottonseed oil, the saponification number is valueless, as the two are practically identical.

10. *Maumené's Reaction.*—When 15 Cc. of olive oil and 5 Cc. of sulphuric acid of spec. gr. 1.840 [original says 66° B.] are mixed together at a temperature of 20° C., the temperature of the mixture will rise to 32°–37° C., generally to between 33° and 35° C.

11. *The Specific Gravity.*—This is very uniform, being, in the case of olive oil, between 0.916 and 0.975. In the case of cottonseed oil, newly made, 0.9245; old, winter oil, 0.9235; old, summer oil, 0.9250.

The oil which had been held to contain cottonseed oil, since it responded to the sulphuric acid test of the U. S. Pharm.—and which was the principal cause of the investigations made by Dr. G. Fabris—gave the following results with the tests upon which the greatest reliance is placed by the analyst:

| | |
|---|---|
| Specific gravity | 0.9165 |
| Iodine number | 80.75 |
| Iodine number of fatty acids | 82.90 |
| Saponification number | 190.01 |
| Maumené's test, temperature rises to | 33.5° C. |
| Fatty acids melt at | 24°–26° C. |
| " " solidify at | 21°–19° C. |
| Baudouin's test | no change of color |
| Schneider's test | " " |
| Bechi's test | no dark color |
| Milliau's test | " " |
| Hauchecorne's test | retains yellow color |
| Brullé's test | " " " |
| Renard's test | no arachic acid |

The author of the pamphlet is clearly of the opinion that the purity or genuineness of olive oil cannot be established on the basis of one or only a few tests, or can be impugned on equally defective testimony. The oil must be shown either to comply or to fail to comply with a number of tests of acknowledged reliability. It may happen that a genuine oil will occasionally be met with which behaves anomalously with one or a few of these tests, yet it will be found generally to respond to all the others. If an oil responds to all, or at least all the really important ones, it must be pronounced genuine.

---

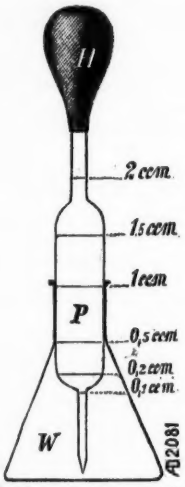
**Cleansing of the Hands after the Use of Carbolic Acid or Corrosive Sublimate.**—Carbolic acid is removed from the hands by bathing them for a sufficient time in alcohol and then anointing them with lanolin. After the use of corrosive sublimate solution the hands should be bathed in a solution of common salt 1 to 50, then washed with soap and water, and finally rubbed with lanolin.—*Pharmac. Central.*, No. 28, 1891.

### CONTRIVANCE FOR WEIGHING OILS.

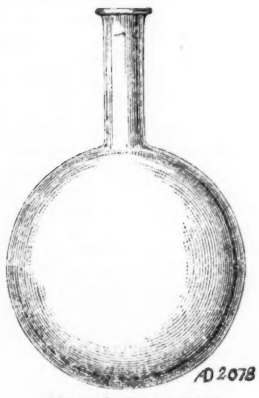
WHEN small quantities of liquid fats, fixed or ethereal oils, or similar liquids are to be weighed for the purpose of analysis, the little apparatus shown in the illustration, suggested by Dr. R. Hefelmann, is very convenient. It consists of a small flask, W, into which is ground a drop tube, P, with rubber bulb, H. The tube is graduated, so that an approximate quantity of the liquid may be delivered. Of course the apparatus is weighed before and after withdrawal of the approximate quantity, so as to ascertain the exact weight taken out.—*Chem. Zeit.*

### COPPER FLASKS.

PROF. W. DITTMAR, of Glasgow, finds that copper flasks are much more serviceable and safe for many operations than those of glass. He has for years been using a kind of globular flask much sold in Glasgow as a sort of "Napier's Coffee-Pot," which is made of thin



Hefelmann's Apparatus for Weighing Oils.



Dittmar's Copper Flask.

copper, tinned, and sold at about 10s. apiece. Of course these flasks are made in several sections, and the joints afterwards soldered. But, as they are so thin and the tinning is moreover often objectionable, he has had stouter ones made, some also of larger size, soldered with *hard* solder (that is, brazed). He has found these copper flasks very convenient, particularly for the purification or rectification of alcohol and ether.—After *Chem. Zeit.*

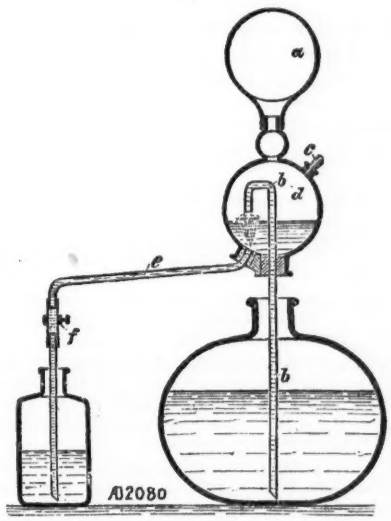
### Methylene Blue in Malaria.

NOT long ago the affinity shown by "methylene blue" for nerve tissue suggested its use as an anodyne (*Pharm. Journ.*, [3], xx., 1057). Similarly the observation that it is the best agent for staining the plasmodium of malaria has suggested that it might exercise a curative effect upon malarial disease (*Pharm. Post*, October 11th, p. 839). The results in two cases treated by Messrs. Guttman and Ehrlich appear to have confirmed the expectation, the fever disappearing in the first two or three days and the plasmodia from the blood within a week. The methylene blue was administered in capsules containing 0.1 Gm., repeated five times in the day, continued for eight days and after the disappearance of the fever. Whether the quantity of 0.5 Gm. daily can be exceeded without injury has not yet been ascertained. The treatment is followed by an increase in the secretion of urine, which is colored intensely blue; and some strangury has been observed, but no albuminuria. The strangury is considered of no importance, and it is stated that it can be treated by giving several times a day as much powdered nutmeg as will lie on the top of a knife—a remedy that is frequently used in South Germany to relieve the inconvenience following the drinking of new beer in excess. The fæces appear to contain the methylene blue in a reduced form, but become blue on exposure to light.—*Pharm. Journ.*

[It is not likely that the use of a remedy, producing such marked changes in the appearance of discharges, will be much in vogue in this country outside of hospitals. —ED. AMER. DRUGG.]

### APPARATUS FOR SIPHONING LIQUIDS FROM CARBOYS, ETC.

THIS apparatus, which is patented (German patent 57,723, November 27th, 1890, Ferd. Stark, Ludwigshafen-on-the-Rhine), consists of a globular reservoir, *d*, to which is attached a rubber ball, *a*. The bottom of the reservoir contains two necks provided with stoppers, through one of which passes the siphon tube, *b*, while the other carries the exit tube, *e*. If the liquid for which



Stark's Apparatus for Siphoning Liquids.

they are to be used permits of it, the tubes, etc., may all be made of metal. At *f* a stopcock is attached, and a tube connected with the latter. When the rubber ball is compressed while the stopcock is closed, the liquid in the carboy will ascend into the reservoir through *b*. Next the stopcock *f* is opened, and also the stopper *c* in the reservoir, until the exit tube is filled with liquid. On now re-inserting the stopper *c* again, the flow of the liquid will continue, and may be arrested at any time by closing the stopcock.

---

**Chlorine Water and Quinine in Typhoid Fever.**—Dr. Burney Yeo recommends as the best antiseptic in typhoid chlorine water with quinine. It is made by putting 30 grains of powdered chlorate of potash into a 12 ounce bottle with 40 minims of strong hydrochloric acid, the bottle is to be corked, the gas allowed to generate, then water is poured in little by little and well shaken with the gas, and finally 24 or 36 grains of quinine and an ounce of syrup of orange peel are to be added; of this mixture an ounce is to be given every two, three, or four hours. In the early stage—first week—one or two full doses of calomel—5 to 10 grains—are recommended, especially if there is constipation.

**The Cost of Births, Marriages, and Deaths.**—Some one estimates that getting born costs the people of the United States $250,000,000 annually; getting married, $300,000,000, and getting buried, $75,000,000. To the economical mind these figures will at once suggest the most advantageous course of conduct.

### Notes on Essential Oils.*

*Oil of Cassia.*—A great change has taken place in the character of the oil as now furnished to the market. This is mainly due to the revelations of the methods of adulteration practised by the Chinese, which revelations were brought about by the investigations in the laboratories of Schimmel & Co. The importance of the subject has been so well recognized by the European houses in Hong Kong interested in oil of cassia, that three of them despatched employees to Leipzig to receive practical instruction in the method of testing the oil. The consequence has been the convincing of the Chinese that no more adulterated oil can be palmed off on exporters as pure. Nevertheless there are still two qualities of the oil quoted in Hong Kong, there being probably some persons who purchase the spurious oil, because cheaper, knowingly for certain markets where its quality will not be examined.

A large number of consignments of the pure oil were found by Schimmel & Co. to contain between 76 and 86 per cent of cinnamyl aldehyde, and to have the specific gravity 1.060 to 1.061. One lot yielded only 75 per cent, and its specific gravity was 1.058. The last-named percentage (75) is accepted by Schimmel & Co. as the lowest for pure oil.

On examining samples of the stock of oil of cassia existing in Hamburg and London, they found only one lot which contained only 68 per cent of aldehyde (being adulterated with petroleum) and having the specific gravity 1.047.

Regarding the estimation of the aldehyde, Schimmel & Co. give an improvement of their process, which we give under a separate heading (see page 367).

*Oil of Bergamot.*—The specific gravity of genuine oil of bergamot is never below 0.880, and that of the rectified or distilled oil not less than 0.870. Oil showing the specific gravity 0.860 is surely adulterated, either with oil of turpentine or oil of orange.

*Oil of Geranium (Pelargonium).*—The oil distilled on the island of Réunion is, in the judgment of Schimmel & Co., the finest, far superior even to the Algerian oil, which up to a few years ago stood at the head of the list.

*Oil of Neroli.*—Schimmel & Co. have themselves distilled oil of neroli from bitter-orange flowers directly imported from the Riviera, their object being to examine the constants of an assuredly genuine sample.

The yield of oil reported by the firm is astonishingly small. Five hundred and sixty kilos of the fresh flowers yielded only 0.46 Gm. of oil. This would be in the proportion of 1 *Gm.* of oil from 1,218 *kilos* of flowers. [We suspect that there is a misprint here, and that it was meant to say 0.46 kilos. This would about correspond to what other authorities report about the yield of orange flowers, viz., 1 part of oil from 1,000 parts of the flowers, though some give it as much higher—as, for instance, 0.6 to 0.7 per cent (see Flückiger and Hanbury, "Pharmacographia," 2d ed., p. 126).

The oil distilled by Schimmel & Co. turned out to differ in properties considerably from the best commercial French oil. It was found to have a specific gravity of 0.887 and to be optically inactive. When cooled to 10° C. (50° F.), a copious separation of a solid body in fine, shining lamellæ took place. Cooled to 0° C. (32° F.), the oil congealed to a firm mass of butter-like consistence. The stearopten of oil of neroli appears to be, like that of oil of rose, a paraffin-like body. It may be separated from the liquid portion by alcohol of 90 per cent, in which the stearopten is difficultly soluble.

The specific gravities of 11 samples of oil of neroli procured from different reputable sources varied between 0.875 and 0.889 at 15° C. Nine samples were optically inactive, while the remainder turned the plane of polarization to the right between +0°52′ and +9°40′. Only *one* of these oils congealed at 0° C. The others remained liquid, and separated no stearopten upon addition of alcohol of 90 per cent.

It remains to be ascertained to what cause these differences are to be ascribed.

*Oil of Sassafras.*—As is well known, the true odorous and active constituent of this oil is safrol, which is at present prepared, by careful fractional distillation, from the crude oil of Japanese camphor, in which it exists as such. Schimmel & Co. point out that there is now offered in this country a so-called "artificial oil of sassafras," which is not, as might be inferred, prepared by synthesis, but is likewise obtained from oil of camphor, though far from being pure safrol. It shows a specific gravity of 1.070. Pure safrol has the specific gravity 1.108.

*Oil of Wintergreen.*—Attention is called to the alleged test of distinction between natural and synthetic oil of wintergreen, recently announced, viz., that fuchsine is more soluble in the artificial oil, and this is supposed to be due to the presence of methylic alcohol. But Schimmel & Co. point out that the reason is a different one. It is simply this, that fuchsine is soluble in methyl salicylate, of which the artificial oil consists entirely, while the natural oil contains besides a small quantity of terpene, in which the fuchsine is insoluble, hence the natural oil has a weaker solvent power for fuchsine. Yet the difference is so small that the test cannot be relied on in practice. Moreover, certain adulterants (petroleum, turpentine, etc.) could be added to the pure synthetic oil which would diminish its solvent power for fuchsine and would thereby make it appear as a genuine oil.

*Rose Pomade.*—Schimmel & Co. appear for the first time as producers of rose pomade, in the preparation of which they use a method entirely different from that which is followed in the south of France.

The flowers, carefully selected and freed from the calices, are added to the fat, previously melted at a quite moderate temperature, and the mixture is kept in constant motion by means of suitable agitators. After a certain time the contents of the vessel are drawn off into a specially constructed centrifugal apparatus placed below, by means of which the fat is separated from the exhausted flowers in a very short time (a few minutes). This method does away with pressing between hot plates, and avoids contact with the hands of the operators.

The impregnated fat flows from the centrifugal apparatus into a reservoir, from which it is retransferred to the original vessel, in which it is then brought in contact with a fresh supply of roses. The process is repeated until it has acquired the desired strength.

The most important factor in this preparation is the quality of the fat. This must be absolutely odorless and of sweet and pure taste.

*Citral.*—This "concentrated or quintessential oil of lemon," as it might be called, is now prepared of superior quality. Seventy-five Gm. of citral are equivalent in aroma to 1 Kgm. of oil of lemon. The most advantageous method of using citral is to mix it with oil of lemon in the proportion of 14 parts of the latter to 1 part of citral. This mixture is soluble to a clear liquid even in dilute alcohol, down to 30 per cent.

*Heliotropin.*—This substance [properly piperonal] has become an important article for perfumers. It is necessary to remember that it must be guarded against heat and sunlight with the greatest care. It can be sent to hot countries only during winter, and must be kept in a cool cellar or other cool place. Direct sunlight destroys it completely.

*From the October "Bericht" of Schimmel & Co., Leipzig.

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**Some Things Ordered at the Druggist's.**—A well-known Philadelphia pharmacist has recently received the following written orders for medicine: A dose of castor oil for a child aged fifteen. Be sure and send enough to work her good. One dozen 2 ounce quinine pills; one bottle honeatta water; a boo gee; one box of Brandteth's pills, sugar quoted. Please send enough appecac to throw up a four months old baby; two 5-grain blue mask pills; ten cents worth partisapated chalk.

## Selected Formulas from the German Unofficial Formulary.*

### *Ferrum Peptonatum.*

Peptonate of Iron.

| | |
|---|---|
| Albumen, dry | 20 parts. |
| Hydrochloric Acid (sp. gr. 1.124) | 33 " |
| Pepsin (Germ. Ph. 1:100) | 1 part. |
| Solution of Oxychloride of Iron (German Ph. "Dialyzed Iron") | 240 parts. |
| Water | a sufficient quantity. |

Dissolve the albumen in 2,000 parts of water, add 30 parts of the hydrochloric acid, and the pepsin, and macerate the mixture during twelve hours at 40° C. Then neutralize it exactly with solution of soda, separate any precipitate which may have formed, and add the solution of oxychloride of iron previously mixed with 2,000 parts of water. Now neutralize exactly with a dilute solution of soda, so as to precipitate the peptonate of iron formed, and wash the latter with water by decantation until the washings are no longer rendered opalescent by silver nitrate. Then collect the precipitate upon a moistened straining cloth, allow it to drain, transfer it to a porcelain capsule, add 3 parts of hydrochloric acid, and warm gently until solution has taken place. Evaporate the liquid, on a water or steam bath, to a syrupy consistence, spread it on plates of glass, and dry it at a temperature of 50° C. (122° F.).

The product appears in form of shining, brown, transparent laminæ or scales containing 24 to 25 per cent of metallic iron. It is slowly soluble in cold, more rapidly in warm water to a clear, faintly acid liquid, which is not rendered turbid either by boiling or by alcohol. On slowly heating 10 Cc. of a solution (1 in 20) of peptonate of iron with 2 Cc. of hydrochloric acid to boiling, the liquid at first becomes turbid, then separates flakes, which finally dissolve.

*Estimation of Iron.*—Dissolve 0.5 Gm. of peptonate of iron in 20 Cc. of hot water, heat with 10 Cc. of diluted sulphuric acid until the matter first separated is redissolved, dilute with 200 Cc. of hot water, add an excess of ammonia, and heat on a water bath until the precipitate has entirely separated and the liquid portion appears colorless. Collect the precipitate upon a filter, wash it with hot water until the filtrate is no longer rendered turbid by barium nitrate, and dissolve it off the filter by dropping upon the latter hot, diluted sulphuric acid. Dilute the solution with water to 100 Cc. [in a measuring cylinder], add 3 Gm. of potassium iodide, and allow the cylinder to stand, well stoppered, for half an hour at a temperature not exceeding 40° C. Then cool, and titrate the liberated iodine by sodium hyposulphite volumetric solution, of which 21.4 to 22.3 Cc. should be required.

### *Hydrargyrum Oleinicum.*

[*Oleatum Hydrargyri.*]

(Oleate of Mercury.)

| | |
|---|---|
| Yellow Oxide of Mercury | 25 parts. |
| Alcohol | 25 " |
| Oleic Acid | 75 " |

Triturate the yellow oxide of mercury, in a porcelain capsule, with the alcohol, add the oleic acid, and continue triturating until the mixture has become so thick that it remains nearly homogeneous. Allow it to stand twenty-four hours, then warm the capsule and contents at a temperature not exceeding 60° C., and stir until the product weighs 100 parts.

A faintly yellowish-white, somewhat translucent mass of the consistence of a stiff ointment, having a distinct odor of oleic acid, slightly soluble in alcohol or ether, more readily in benzin, and completely in fixed oils.

Addition of hydrogen sulphide solution renders it deep black.

* Continued from page 298.

### *Gelatina Lichenis Islandici Saccharata Sicca.*

Saccharated, Dry, Iceland Moss Jelly.

| | |
|---|---|
| Iceland Moss, coarsely comminuted | 15 parts. |
| Potassium Carbonate | 1 part. |
| Sugar | a sufficient quantity. |
| Water | a sufficient quantity. |

Mix the Iceland moss with enough water to cover it, add the potassium carbonate, and let stand twenty-four hours, occasionally stirring. Separate the liquid, and wash the moss well with water until it no longer has a bitter taste. Now add to it 200 parts of water, digest the whole on a steam bath during four hours, occasionally stirring, and then strain. Repeat this digestion with water, and unite the strained liquids. Then add 5 parts of sugar, evaporate until the mass is no longer sticky, cut it in pieces and dry them. Then reduce them to a moderately fine powder, and mix this with enough sugar to obtain altogether 10 parts of product.

### *Gossypium Carbolisatum.*

Carbolized Cotton.

| | |
|---|---|
| Carbolic Acid | 15 parts. |
| Resin | 60 " |
| Alcohol | 520 " |
| Castor Oil | 6 " |
| Purified Cotton | 200 " |

Dissolve the resin in the alcohol, filter the solution, and add to it the carbolic acid and castor oil. Saturate the cotton with the mixture, press the damp mass until it weighs 600 parts, and dry it without heat.

One hundred parts of the product contain about 5 parts of carbolic acid.

### *Gossypium Hæmostaticum.*

Styptic Cotton.

[*Gossypium Stypticum.*]

| | |
|---|---|
| Solution of Chloride of Iron (Ph. Germ., sp. gr. 1.280) | 150 parts. |
| Glycerin | 15 " |
| Water | 250 " |
| Alcohol | 200 " |
| Purified Cotton | 200 " |

Mix the liquids, immerse the cotton therein, then press it until the product weighs 600 parts, and dry it at a gentle heat, with exclusion of light.

One hundred parts contain about 25 parts of anhydrous ferric chloride.

Keep the product protected against light.

### *Gossypium Hydrargyri Bichlorati.*

Sublimate Cotton.

[*Gossypium Hydrargyri Chloridi Corrosivi.*]

| | |
|---|---|
| Mercuric Chloride (Corrosive Sublimate) | 9 parts. |
| Lithium Chloride | 9 " |
| Alcohol | 7,500 " |
| Purified Cotton | 2,500 " |

Dissolve the salts in the alcohol, which is then preferably tinted with a little fuchsine, and saturate the cotton with the liquid. Then press the cotton until it weighs 7,500 parts, and dry it in an airy place, protected against the light.

One hundred parts contain about 0.25 part of corrosive sublimate. Keep protected against light.

[*Note of Ed. Am. Drugg.*—Prepared with alcohol this dressing would become too expensive, unless most of the alcohol could be recovered. Wood alcohol may be used in place of ethylic alcohol.]

### *Kefir.*

Cow's milk caused to undergo alcoholic fermentation by means of the so-called kefir grains, a peculiar ferment prepared in the Caucasus.

*Preparation.*—Cover the air-dry kefir grains with water at 30° C. (86 F.), and macerate from four to five hours.

Pour off the water, wash the kefir grains several times with fresh water, then pour upon them ten times their weight of milk and shake the mixture every hour.

Pour off the milk twice each day, wash the swelled kefir grains several times with water, cover them again with 10 parts of new milk, and continue to do this until the milk has acquired—after about five to seven days—a purely acidulous odor and the completely swelled kefir grains float on the surface of the liquid.

After the kefir grains have thus been prepared, they are again added to 10 times their original weight of fresh milk. The mixture is allowed to stand between six and twelve hours, being occasionally shaken, and then strained.

Seventy-five cubic centimetres of the strained liquid are poured into a well-cleaned, strong bottle holding about ¾ litre (21 fluidounces), which is then nearly filled with fresh milk and securely stoppered.

The bottles are kept at a temperature of about 15° C. (59° F.), and are occasionally shaken. In from one to three days the contents will be ready for use.

All cow's milk employed in this process must have been previously boiled [and skimmed], and then cooled again to 20° C.

Prepared kefir is a strongly effervescing, creamy liquid, of an agreeable, acidulous taste, and an odor like buttermilk.

The casein which has been precipitated by the above process must be in a condition of extremely fine division.

### Latin in Prescriptions.

THERE occur periodically attempts to induce medical men to write prescriptions in the vernacular. Several legislatures have even been appealed to, and laws have been framed for the abolition of Latin. The arguments for this are generally that the latinity of modern prescriptions is very bad, that the practice is simply the survival of an ancient and useless custom, and that it is pedantic and useless, and conceals from the patient things that he ought to know. We regard it as fortunate that the good sense of the profession has not been imposed upon by these specious arguments. The reasons for using Latin in prescriptions are sound and practical. The chief one is, that it is of the greatest importance to have drugs given names which will not be changed with fashion or locality, and which will be understood all over the world. In a recent article upon this subject, Prof. Joseph P. Remington (*Journal of the American Medical Association*, October 21st, 1891) has given a long list of plants whose English names indicate three or four different substances. Thus, to illustrate:

Lungwort may be either *Pulmonaria officinalis* or *Variolaria faginica.*

Masterwort may be either *Angelica atropurpurea* or *Imperatoria ostruthium.*

Matico may be either *Piper angustifolium* or *Artanthe elongata.*

Milkweed may be either *Asclepias tuberosa*, *Apocynum androsæmifolium*, or *Euphorbia corollata.*

Monkshood may be either *Aconitum napellus* or *Leontodon Taraxacum.*

Partridge berry may be either *Gaultheria procumbens* or *Momordica balsamina.*

Pellitory may be either *Anacyclus Pyrethrum* or *Xanthoxylum fraxineum.*

Prickly ash may be either *Xanthoxylum Fraxineum* or *Aralia spinosa.*

Rattle root may be either *Macrotys racemosa*, or *Cimicifuga racemosa*, or *Cicuta virosa.*

Rattlesnake root may be either *Goodyera pubescens*, *Nabulus albus*, *Cimicifuga racemosa*, or *Polygala Senega.*

Snake root may be either *Cimicifuga racemosa*, *Aristolochia serpentaria*, *Eryngium aquaticum*, *Liatris spicata*, *Asarum Canadense*, *Polygala Senega*, or *Eupatorium aromaticum.*

Spice berry may be either *Gaultheria procumbens* or *Laurus benzoin.*

But besides this, it would add immensely to the difficulties of practical therapeutics, if in the literature of foreign languages the vernacular was used to designate the drugs employed. Such difficulty is indeed experienced to some extent already with the French, whose prescriptions are often unintelligible to any but Frenchmen.

There is no doubt a need of reform in the latinity of modern prescription writing, but the abolition of the use of this language would be a misfortune.—Editorial in *Medical Record.*

### Salicylamide.

THE pharmacology of salicylamide is the subject of a preliminary communication from Dr. W. R. Nesbitt, of Toronto. As the result of a number of experiments, the author expresses the opinion that for therapeutic purposes salicylamide presents advantages over salicylic acid and its salts in being free from taste, more soluble than salicylic acid, acting more promptly and in smaller doses, having greater analgesic properties, and being pharmacologically safer. Salicylamide $C_6H_4\begin{cases}OH\\CO.NH_2\end{cases}$ was first prepared by Limpricht, by treating gaultheria oil with concentrated solution of ammonia—a method preferred by the author, as avoiding the possibility of introducing foreign toxic compounds, as might be the case when an artificially produced methyl salicylate is used.

When ammonia and gaultheria oil have stood together in the cold for some days, the liquid assumes a deep reddish-brown color, and separation takes place in brown crystals that can be easily purified by recrystallization. From a saturated solution rapidly cooled it separates in an acicular form, otherwise it occurs in thin, long plates or bunches of plates. By treatment with charcoal Dr. Nesbitt found it easy to obtain perfectly colorless, thin transparent plates, melting at 142° C., soluble in alcohol, ether, chloroform, and about 250 parts of water. Salicylamide is quite tasteless, but produces a gritty sensation between the teeth. It is excreted in the urine partly unaltered, but chiefly as salicyluric acid. It possesses decided germicidal properties, and it was found that both diastatic and peptic changes are retarded by it, but not to the same extent as by salicylic acid.—*Therap. Gazette*, October 15th, and *Pharm. Journ.*

### A New Laboratory Process for Preparing Hydrobromic Acid.

THIS method is a synthetical one, and consists in passing a stream of hydrogen and bromine vapor over a spiral of platinum wire heated to bright redness by means of an electric current. A glass tube, about 7 inches long and ¼ inch bore, is fitted at each end with a cork carrying a short, straight piece of small tube; through each cork is also fixed a stout wire, and these two wires are joined by means of a short spiral of platinum wire, the spiral being about 1 inch long. One end of this apparatus is connected to a small wash bottle containing bromine, through which a stream of hydrogen can be bubbled. The other end is attached to a tube dipping into a vessel of water for the absorption of the gas, or, if a large quantity of the solution is required, to a series of Woulff's bottles containing water. Hydrogen is first slowly passed through the tube until the air is displaced, when the platinum spiral is heated to bright redness by the passage of a suitable electric current.

Complete combination takes place in contact with the hot wire, and the color imparted to the ingoing gases by the bromine vapor is entirely removed, and the contents of the tube beyond the platinum are perfectly colorless. The vessel containing the bromine may be heated to a temperature of about 60° C. in a water bath, at which temperature the hydrogen will be mixed with nearly the requisite amount of bromine to combine with the whole of it. So long as even a slight excess of hydrogen is passing, which is readily seen by the escape of bubbles through the water in the absorbing vessels, the issuing hydrobromic acid will remain perfectly colorless and therefore free from bromine; so that it is not necessary to adopt any of the usual methods for scrubbing the gas through vessels containing phosphorus. When the ope-

ration is proceeding very rapidly a lambent flame occasionally appears in the tube just before the platinum wire, but this flame is never propagated back through the narrow tube into the bromine bottle. The precaution may be taken, however, of plugging this narrow tube with a little glass wool, which renders any inconvenience from this cause quite impossible. By this method a large quantity of bromine may be rapidly converted into hydrobromic acid without any loss of bromine, and the operation when once started can be allowed to proceed without any further attention.—After *Chem. News*, Oct. 30th.

[*Note by Ed. Amer. Drugg.*—In 1881 August Harding, of San Francisco, published a similar method in the *Berichte d. Deutsch. Chem. Ges.* (p. 2085). He used a platinum tube, 4 inches long and ⅛ inch wide, containing some spirally twisted platinum foil, which was heated by a Bunsen burner. The whole apparatus is described and illustrated in this journal (NEW REMEDIES), 1882, p. 43.]

### Preparation of Pure Tuberculin.

DR. KOCH has recently given precise information as to the method adopted in preparing tuberculin.

It is generally understood that tuberculin is a product of the cultivation of tubercle bacilli obtained in the form of a glycerin extract.

As may be supposed, a principal difficulty has been the cultivation of the bacilli free from admixture with other organisms. Originally the tubercle bacilli were sown upon "glycerin-peptone-agar," and when the culture had attained its full development it was washed off, collected on a fine wire gauze, extracted with a 4-per-cent glycerin solution, the solution evaporated to one-tenth, filtered, and the filtrate used. When a large demand arose for tuberculin the agar cultivation was found unsuitable, as it gave relatively small results. A previously abandoned attempt to cultivate the bacilli in a liquid medium was therefore resumed, but at first without success, until some small, flat pieces of cultivation which had been left dry and unmoistened in the upper part of the flask were observed swimming on the top of the liquid, where they developed most luxuriantly. In the course of a few weeks they formed over the entire surface a tolerably thick, whitish skin, dry on the upper side, which eventually became moistened, broke up, and sank to the bottom. The product from such a culture proved considerably greater than that developed on solid media. The cultivation liquid used is an infusion of veal made faintly alkaline and with 1 per cent of peptone and 4 or 5 per cent of glycerin added. The bacilli sown give practically the same results, whether taken from fresh or old cultivations, from a tuberculous patient or after passing through a series of animals.

When the culture is quite mature, which occurs at the end of six or eight weeks, and has been ascertained to be absolutely pure, it is extracted by means of the cultivation liquid itself, and the extract is evaporated on a water bath to one-tenth of its original volume and filtered through porcelain. It then contains from 40 to 50 per cent of glycerin, and is tested as to its activity by experiments upon guinea-pigs.—After *Deutsch. Med. Wochenschr.* and *Pharm. Journ.*

### Testing Oil of Cassia.

THE best criterion of the purity or genuineness of oil of cassia is the amount of cinnamyl aldehyde it contains. It is the merit of Schimmel & Co., of Leipzig, to have first pointed out the nature of the adulteration so long practised by the Chinese, and also to have communicated a method of testing by which the adulteration can be detected without difficulty. We published this method last year (AMER. DRUGG., 1890, 135), but Schimmel & Co. have recently improved the process so that it takes a much shorter time. We therefore republish it here, incorporating therein the new features, after their October report.

*Requisites.*—A solution of sodium bisulphite containing about 30 per cent, such as is usually sold in the market, but it must be perfectly clear; a pipette marked at 10 Cc.; a water bath; and a special small glass flask of the capacity of about 100 Cc., having a neck about 13 Cm. (5¼ inches) long and 8 Mm. (⅛ inch) in diameter, upon which is a graduated scale beginning with 0 below, extending to 6 Cc., and divided into $\frac{1}{10}$ Cc.

*Method of Testing.*—Transfer 10 Cc. of the oil to be tested, by means of the pipette, into the flask, allow the pipette to drain, and empty it as completely as possible by blowing through it. Now warm the flask on the water bath, and then add to it the solution of sodium bisulphite, in small portions at a time, waiting after each addition until the solid mass produced by it has become completely liquid again. When the further addition of the solution no longer produces a solidification, the whole of the aldehyde has entered into a liquid combination with the bisulphite. About ten or fifteen minutes will be required for this reaction, provided the percentage of aldehyde was high. If only a small quantity of aldehyde was present, a longer time is required to complete the reaction. The completion of the latter is recognized by the contents forming two distinct and sharply defined layers—one, a lower aqueous one, containing in solution the bisulphite compound of the cinnamyl aldehyde; and an upper, oily layer, consisting of the other constituents of the oil. Now take the flask from the water bath and cool it to the ordinary temperature [at which the original oil was measured]. Next add more bisulphite solution until the oily layer has been driven up into the narrow neck of the flask, and its lower margin corresponds with the mark 0. Read off the number of cubic centimetres of this layer, and deduct it from 10. Supposing the oily layer measured 2.7 Cc., then the original oil contained 7.3 Cc. of cinnamyl aldehyde and 2.7 Cc. of non-aldehydes, or 73 per cent of the former and 27 per cent of the latter. Of course these are percentages by *volume*. Yet, since the specific gravity of the non-aldehydes of oil of cassia (1.060 at 20° C.) is almost identical with that of cassia oil itself, the difference between percentage by volume or by weight is insignificant.

In making the test it is necessary to assure one's self that the *whole* of the cinnamyl aldehyde has been acted upon. No sign of any coagulum must be remaining either in the oily layer or adhering to the flask.

If the oil is adulterated with much resin, the coagulum produced by the bisulphite will dissolve only with difficulty. If protracted heating does not cause solution, the above test is inapplicable.

Instead of using an additional quantity of solution of sodium bisulphite to cause the oily layer to ascend into the neck of the flask, a filtered solution of chloride of sodium may be used.

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**An Attempt to Render Tobacco Harmless.**—Smokers may be pleased to learn that Dr. Gautrelet, of Vinchy, claims to have discovered a method of rendering tobacco harmless to mouth, heart, and nerves, without detriment to its aroma. According to him, a piece of cotton wool steeped in a solution (5 to 10 per cent) of pyrogallic acid, inserted in the pipe or cigarholder, will neutralize any possible effects of the nicotine. In this way not only may the generally admitted evils of smoking be prevented, but cirrhosis of the liver, which in Dr. Gautrelet's experience is sometimes caused by tobacco, and such lighter penalties of overindulgence as headache and furring of the tongue, may be avoided. Citric acid, which was recommended by Vigier for the same purpose, has the serious disadvantage of spoiling the taste of the tobacco. —*Science.*

**Consumption of Tobacco in France.**—Last year French smokers consumed 4,600,000 francs' worth of cigars, 10,000,000 of cigarettes, 29,000,000 of snuff, and 91,000,000 worth of pipe tobacco. The greatest snufftakers are old peasant women and priests. Snuff is often allowed to Sisters of Charity, as it renders the nose insensible to the bad smells of slums and hospitals, and acts as a disinfectant of the air taken in by the nostrils. The greatest number of pipe smokers are along the coast from Nantes to Calais. Fisherwomen as well as sailors use the pipe. The consumption of ladies' cigarettes rose from 101,900 francs to 800,000 francs last year, and the orders received at the tobacco manufactory promise a still further increase under this head. There is one anti-tobacco society in France.—*The Sun.*

# American Druggist

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## EDITORIAL.

### TAX-FREE ALCOHOL.

Now comes a wail from Germany regarding the hard ship which manufacturers of fluid extracts have to suffer if they want to use tax-free alcohol. It appears that the regulations regarding the use of alcohol free from internal revenue tax have been recently modified and made much more stringent, no doubt owing to some leaks. When alcohol is wanted for use in the arts or manufactures, free from tax, the law requires that it must be "denaturalized" immediately after having been mixed with water, so that it cannot be fraudulently withdrawn or used for other purposes not comprised within the Government permission. As it would be impossible to use "denaturalized" alcohol for medicinal fluid extracts, for the denaturalization is accomplished by the addition of various nasty-tasting or badly-smelling substances, the problem to be solved was how diluted alcohol, intended for percolation, could be so guarded by Government that it could not be used for other purposes without compelling the constant supervision of a Government official. This problem has been solved in this way. The firm of M. Hellwig, manufacturer of chemical and pharmaceutical preparations, has set up a large number of small percolators of 10 litres (5 quarts) capacity, over each of which is placed a bottle or reservoir containing enough of the menstruum to exhaust the drug packed in the percolator. These reservoirs are connected with the percolator by means of a *seal* applied by the internal revenue officer. This seems to be a queer and useless proceeding. For there are many fluid extracts from which the alcohol can easily be distilled off again without imparting to it such a flavor that it becomes unfit for use as an ingredient in artificial beverages or liqueurs. It seems strange to us on this side of the ocean, who are compelled to use tax-paid alcohol for all such purposes, that the German wholesaler or manufacturer can enjoy such a privilege, while any dispensing pharmacist would be compelled to use tax-paid alcohol. We do not wish to be misunderstood, however. For many years efforts have been made in this country to release alcohol, to be used in the arts or for medical purposes, from internal revenue tax. But these efforts have been so far unsuccessful, no doubt because the Government advisers of the respective committees of the two houses of Congress argued that this would open the doors to extensive frauds and that tax-free alcohol would surely find its way into the hands of the makers of artificial liquors, who were the very persons not intended to be benefited by the proposed act.

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Regarding the desirability of tax-free alcohol in the pharmaceutical arts of this country, it is apropos to this subject to inquire who would derive benefit from this change in our revenue laws, and the answer which seems most reasonable is—the manufacturer of nostrums. For if a tax be still imposed upon alcohol used as a beverage, it will be essential that its use in the arts must be carried on with restrictions and conditions which would not be practicable outside of the limited number of establishments capable of direct governmental supervision. This would rule out all but the larger manufacturing laboratories, and thus tend to place the retail pharmacist at a still greater disadvantage than he experiences at present in the manufacture of tinctures and fluid extracts, as compared with manufacturers on the large scale. The difference in cost of materials would at once preclude any effort by retailers to make such preparations, excepting in emergencies.

The retailer would be, still more than now, dependent upon manufacturing laboratories for his supplies, and the need for individual skill as a pharmaceutical chemist be correspondingly removed, so that the tendency would be to lessen the general need for higher professional qualification among pharmacists.

The next result would naturally be an increase in the number of manufacturing laboratories, with corresponding competition in this branch of the business, not at all likely to be confined to alcoholic preparations. For, when laboratories are once established, other things than tinctures and fluid extracts, which may or may not involve the employment of alcohol, will be made and sold. Those who are at present engaged in a wholesale and manufacturing business have thus little to gain from free alcohol with restrictions which limit its use in the arts to establishments maintaining a Government inspector.

How largely will the public be served by the removal of the alcohol tax? They could buy their "patent" medicines, galenicals, and prescriptions for less money at the notion stores and the "cutting" druggists'; and the other retailing druggists would ultimately be obliged to lower prices to correspond to the diminished price of the materials used. Indeed, it is not unlikely that the public might consider itself entitled to a reduction in prices out of proportion to the difference in actual cost of materials, and thus add to the present embarrassments of the trade.

Altogether, it appears to us that the interests of the drug trade are better promoted by the present conditions than they would be by a removal of the tax on alcohol employed in the arts under the restrictions which would become necessary; and that, until *all* taxation of alcohol is abandoned, pharmacists will do better to oppose such partial reduction than promote legislation to that end. It is sometimes wiser in such matters

"To bear the ills we have
Than rush to others that we know not of."

## ORTHOGRAPHY OF METRIC TERMS.

AUTHORITIES on orthography are at variance regarding the proper English spelling of the words *litre* (*liter*), *metre* (*meter*), and kindred terms and their compounds or derivatives. Since the next Pharmacopœia will, no doubt, have much occasion to mention such terms, and pharmaceutical literature in general will hereafter more frequently make use of them, it will be of advantage to examine the claims made for both spellings, and to try to reach a decision.

The words involved in this inquiry are mainly the following: *metre* (*meter*), *litre* (*liter*), and *titre* (*titer*).

As to "metre," it must be acknowledged that the spelling *meter*, *centimeter*, etc., has become very customary in this country, no doubt through the analogy of other words ending in "meter" which have long been spelled thus exclusively, viz.: barometer, thermometer, hydrometer, diameter, hexameter, etc. We ourselves have up to the present time always written "meter" "centimeter," "liter," etc. On examining those analogous words, however, it will be seen that they all have the accent on the third last syllable—that is, the word *meter* in them is distinctly dissyllabic and the *e* short. On the other hand, the words "centimetre," "millimetre" (or "centimeter," "millimeter") are commonly pronounced with the accent upon the *me*, no matter which way they are spelled. This is due to the fact that these terms were transplanted into English, not directly from the classic languages, but from the French, in which the term *mètre* was chosen to denote a specific kind of measure. Both accent and origin of the terms, therefore, justify the retention of the French spelling *metre*. This tendency to preserve the spelling of words which have passed from classic languages into English through the intermediary channel of French, is also evidenced by such forms as colour, odour, which forms are supported by British orthoëpists and authorities, though they are less favored by American writers.

The best modern authorities nearly all admit both spellings, *meter* and *metre*. The Century Dictionary evidently prefers *meter* (and *liter*), as it places them first, though it does not say so expressly. On the other hand, Murray's great Dictionary (Oxford) only recognizes the spelling *centilitre*, *centimetre*, rejecting the other. An interesting note regarding the spelling which certain words in *-tre* (or *-ter*) have undergone will be found in Murray's Dictionary under the word *centre*.

As to the words *litre* (*liter*) and *titre* (*titer*), we will be justified in deciding beforehand that they ought to be spelled in analogy to *metre* or *meter*, whichever of these two forms may be finally preferred.

Before drawing a conclusion from the facts so far stated, let us also consider the prevailing modes of writing the term *gramme* (*gram*). It is to be regretted that the Century Dictionary has given the preference to the abbreviated form *gram* (though the form *gramme* is also quoted), no doubt led by the principle (confessedly governing its responsible authors) of eventually reforming English spelling in accordance with modern "fonetics." We are ourselves in full sympathy with the new movement, but object to its application in cases where it might cause awkward or dangerous misunderstanding. The *danger* of the abbreviated form *gram* probably never occurred to the authorities connected with the editorial staff of the Dictionary, and, in fact, it is not likely to occur to one who has not had much to do with prescriptions or technical recipes, or who is not aware that the words *gram* and *grain* have very often been confounded, either by mere inadvertence or by the breaking off of the dot upon the *i* in grain: *gram—grain*, a confusion which has been *the cause of a number of deaths*. It is true that the form *gram* was adopted a number of years ago, by an International Commission held on the Continent of Europe, as the standard spelling, but neither pharmacists nor physicians had any voice in this convention. The latter would certainly have pointed out the dangerous consequences, though they might not have prevailed against the arguments of the mathematicians and other pure-scientists assembled there.

The last U. S. Pharmacopœia, fully recognizing the importance of avoiding confusion between *gram* and *grain*, adopted the spelling *gramme*, and it is not likely that this will be altered in the next revision of this work.

Assuming, then, that the original French spelling of this word will be preserved, we have here an additional reason for preserving the French forms of the allied terms *metre*, *litre*, *titre*, and of compound words containing these. Accordingly, we advocate a general adoption of this mode of spelling, and shall hereafter adhere to it ourselves. We know that a committee of the American Association for the Advancement of Science has had the spelling and pronunciation of these, and of chemical terms generally, under consideration for several years. From a recent report published by this committee, it appears that a majority lean toward the spelling *meter*, *liter*, *titer*. We have no other objection against this way of spelling, except that it is not in harmony with the spelling of the term *gramme*, and we earnestly and seriously protest against the introduction of the abbreviated word *gram* into medicine or pharmacy.

Incidentally we desire to say a few words regarding the abbreviations or symbols used for the terms above mentioned. The International Convention mentioned above adopted the abbreviation *gr.* for the word "gram." Manifestly this is a dangerous abbreviation in all countries where the *grain* is still in common use. In France, Germany, and most other European countries the grain has either never existed or has become obsolete, so that there is no chance of any confusion there. The last U. S. Pharmacopœia placed its seal of approval upon the abbreviation or symbol *Gm.*, it being intended that all abbreviations of terms of the *metric* system should begin with a *capital* letter, and accompanying numbers to be written with *Arabic* figures; while abbreviations of terms of the *common* system should begin with a *small* initial, and accompanying numbers to be written with *Roman* figures.

Accordingly, the following abbreviations or symbols ought to be used:

M = metre.
Gm. = gramme.
L = litre.
gr. = grain.
Mm. = millimetre.
Cm. = centimetre.

The term "cubic centimetre" is, by long custom, abbreviated by using two c's: cc., or c.c., or C.c., or Cc.; also sometimes thus, $cm^3$, $Cm^3$. In accordance with the rule that metric terms should be written with capital initials, the last (present) U. S. P. chose "C.c.," but there is no need of the period after the C, as this stands for the adjective "cubic," hence the preferable symbol is:

Cc. = cubic centimetre.

## CORRESPONDENCE.

### VOLUMETRIC ESTIMATION OF ACETATES.

*Editors of American Druggist.*

In reply to Dr. C. C. Hamilton's letter of October 30th, published on page 356 of your journal, I should like to ask him how he can reconcile his use of the expression $\frac{N}{2}$ sulphuric acid with the statement made on pages 107, 114, 130 of Muter's "Analytical Chemistry," of which he is the American editor. Dr. Hamilton evidently feels justified in using the terms normal and seminormal indiscriminately for the same acid, for in his book he states that *normal* sulphuric acid contains 49 Gm. of $H_2SO_4$ in every litre, and in his method for the volumetric determination of acetates he claims that $\frac{N}{2}$ sulphuric acid likewise contains 49 Gm. $H_2SO_4$ in each litre. It was on this point that I criticised Dr. Hamilton's paper, the wrong use of the expression $\frac{N}{2}$ acid, and I say again that $\frac{N}{2}$ $H_2SO_4$ will be understood by all analysts to mean an acid containing 0.020 $SO_3$ in each cubic centimetre, Dr. Hamilton's statement to the contrary notwithstanding. If Dr. Hamilton's method requires a stronger acid to show the change of color promptly, all well and good; but do not call this acid seminormal ($\frac{N}{2}$) and say that it should neutralize an equal volume of volumetric solution of soda U. S. Pharm. Let Dr. Hamilton promptly acknowledge his error and say that his table refers to the use of *normal* $H_2SO_4$ of such strength as stated on page 114 of his own book; otherwise the method may never receive the support of analysts and pharmacists. Respectfully,

CHAS. CASPARI, JR.

MARYLAND COLLEGE OF PHARMACY,
BALTIMORE, November 23d, 1891.

## BIBLIOGRAPHY.

DOMESTIC ALMANAC: 1892. A Medical and Hygienic Reference Book.

Recognizing the occasion for an almanac for distribution by pharmacists as a medium for advertisement, Mr. Hallberg, of Chicago, with the aid of cuts derived from Peter's work on ancient pharmacy, has prepared an attractive book which contains matter calculated to disseminate information which will benefit both the pharmacist and the public. An investment in this mode of advertising ought to give profitable returns.

AN ABSTRACT OF THE SYMPTOMS, with the Latest Dietetic and Medicinal Treatment, of Various Diseased Conditions. The Food Products, Digestion, and Assimilation. The New and Valuable Preparations Manufactured by Reed & Carnrick. New York: Reed & Carnrick, 447-449 Greenwich street. New York, 1891. Pp. 79; small 8vo, muslin.

The foregoing title indicates clearly the character of the volume. The various conditions referred to embrace those in which nutritive changes are leading factors, and present opportunities for the employment of the dietetic preparations for which these manufacturers are deservedly noted. As might be anticipated, the importance of dietetic regimen has received a large share of attention, but by no means excludes the essential factors of etiology and pathology or some reference to medicinal treatment. While the compilation is anonymous, the references include recent literature by acknowledged authorities.

ALL AROUND THE YEAR is a new calendar for 1892 issued by Lee & Shepard, Publishers, of 10 Milk street, Boston. It is in the form of cardboards, 4½x5½ inches, with gilded edges, tassels, rings, and suspending chain, and has upon each card a calendar for the month with most charming designs in pale tints of children who typify the different months in their costumes and pastimes. The calendar is most attractive, and sells for 50 cents, boxed, and postage paid.

## INFORMATION WANTED.

No. 2,550.—**Breaking of Shelf Bottles.** During the past year several inquiries have been received for the reason why many shelf bottles containing waters crack about the neck. The frequency with which these inquiries are accompanied by the statement that *all* bottles of this character are thus damaged warrants some study of the conditions involved. We hope to hear from some one who has given the subject practical consideration.

## NEWS AND NOTES.

### MISSOURI.

THE retail druggists of the State of Missouri are always busy at this time of year unpacking holiday goods and arranging them in as attractive a manner as possible. Those of the large cities, like St. Louis and Kansas City, do not carry as immense stocks of toys as their country cousins, but they make up for it by handling more expensive goods in the line of toilet sets, cut-glass bottles, and similar articles suitable for presents. In the smaller towns throughout the State the retail druggists feel as if the holiday trade in toys, picture books, and such things belonged exclusively to them. They look upon the general dealer who handles holiday goods as infringing upon their rights.

The druggists of St. Louis seem to be tiring of the holiday trade, and this year there is a marked decrease in the amount of goods which they are handling. This change has been gradually brought about by the inroads made in holiday goods by the general dry-goods stores. Each year, for some time past, the dry-goods dealers have been giving special attention to almost everything in the way of holiday presents. They have cut the profits down to such an extent that a druggist becomes dissatisfied with the difference between the buying and selling prices. It is probable that a few more years will see a complete revolution in this trade, and the druggists will no longer attempt to handle goods that are only in season during the holidays.

Those who have been familiar with the wholesale drug houses of St. Louis for the past dozen years cannot help but be impressed by the different appearance presented by them during the present holiday season and that of a few years ago. The stores are no longer stocked with toys and other holiday goods, but business progresses in the even tenor of its way as if Christmas was not approaching. An interview with leading wholesale dealers reveals the explanation; it is claimed that competition with notion houses and stationery dealers has cut the profit down to such an extent that it does not pay them to make special arrangements for holiday trade. The handling of holiday goods by wholesale druggists has always interfered with their regular trade, and they now feel as if the loss on that kind would equal the increase from special holiday sales.

There is a possibility that the druggists in the smaller towns will gradually give up the holiday trade and turn it over to dealers in notions, stationery, etc. It seems to be in keeping with the tendency of the times, and may be brought about gradually, so in the course of a few years the entire holiday trade will have slipped away from both wholesale and retail dealers in drugs.

With present competition and low prices in holiday goods, it requires great judgment in buying and special care in selling in order to realize a profit. Holiday goods must be very carefully selected, judiciously priced, and attractively displayed in order to render a profit. Even with all these pains it often happens that a large quantity of holiday goods are left over after the holiday season. There are two methods of disposing of them: one is to sell them at extremely low rates and the other to carefully pack them away for reappearance next year as "new goods." It is difficult to say which one of the two plans is the more desirable. In case goods are saved

for another season it is essential to see that they are very carefully packed, so that they will not be injured by dust or breakage.

There is a feature of Christmas and New Year's celebration in Missouri and the Southern States which is not known in the North and East. This is the use of firecrackers and other pyrotechnic demonstrations. Thus it is that the drug stores handle firecrackers, toy torpedoes, and other fireworks which only sell during Fourth of July season in other parts of the country. It is difficult to say just how this method of celebrating Christmas originated, but it is quite generally followed in the State of Missouri.

## CHICAGO.

JOHN SCHOKE has purchased the pharmacy located at 845 Milwaukee avenue, corner Division street.

SECORD'S pharmacy has been removed from State and Van Buren streets to 53d street. This was owing to an enormous increase in the rental.

The C. J. FARIES Co., of St. Paul, Minn., manufacturers of Faries' Almond Cream, etc., has removed to this city, and established its quarters in the Calumet Building.

The firm of MARY E. MURRAY & Co., 1059 Washington Building, was recently organized for the manufacture of Murray's Almond Nut Cream and Salve.

The pharmacy at 100 North State street, formerly owned by A. S. COWAN, has been purchased by RICHARD TRUPPEL, proprietor of a store at 96 Wells street.

C. F. PFANNSTIEL has moved his pharmacy from Lake View to Rush street and Bellevue place.

J. S. FORD, of 232 Milwaukee avenue, is attempting to organize a stock company among the druggists of this city for the manufacture and sale of the "Sweet" remedies.

HENRY SCHROEDER, of Chicago and Milwaukee avenues, has moved into new quarters on the opposite corner. He has now one of the best appointed pharmacies in this city.

A pharmacy is to be opened very soon on Wabash avenue near 24th street.

J. B. KERR has disposed of his pharmacy at 182 South Desplaines street to F. L. MUELLER.

R. R. MARTIN, for many years the Chicago representative of Parke, Davis & Co., has resigned his position with that firm to take charge of other business interests.

WALTER F. MEYER has purchased the pharmacy formerly owned by Dr. Shugart and located at Ogden avenue and Harrison street.

The business of T. CROOKER, located at Loomis and Madison streets, has been suspended.

MR. LEBENTHAL is about to open a new store at Robey and West 12th streets.

E. B. STUART & Co. have purchased the store, formerly owned by T. N. JAMIESON, at 39th street and Cottage Grove avenue.

The dispensary department of the College of Physicians and Surgeons is now charging regular rates for prescriptions. This is quite gratifying to the pharmaceutical profession, and it is hoped that the other medical institutions will, in the near future, pursue the same plan.

OSCAR ALEX, the pharmacist at 48th and Loomis streets, was attacked one evening recently near his store by two pickpockets. He managed to escape from them, and, entering the rear door of his store, secured his revolver, with which he gave chase. Several shots were fired by him, but neither of the miscreants was injured nor have they been apprehended.

CHARLES L. FELDKAMP has returned from Bay City, Mich., and has purchased the pharmacy at North Clark and Frederick streets formerly owned by OTTO HOTTINGER.

GEORGE R. BAKER has disposed of his Lincoln Park store to OLD & MEYER.

The Acme Publishing and Engraving Company has threatened to enter suit against several pharmacists of this city for refusal, on the part of the latter, to accept and pay for a specified number of copies of a publication known as "Chicago of To-Day" on the ground of fraud and misrepresentation.

The Chicago College of Pharmacy held its semi-annual meeting on the 20th of October. The attendance was excellent. Aside from the routine business was discussed the present and prospective condition of the college, the outlook being quite flattering. The present class numbers over 200.

## ENGLAND.

IT is a rather curious coincidence that the municipal authorities of both London and New York are just now perplexed with the subject of a pure water supply. In each case there appears to be a growing opinion that the supply is not above suspicion, and loud demands are being made for its purification and protection from further contamination. London has the more difficult problem to solve, as it is not only the purity but the adequacy of the supply that is in question. Moreover, there is a feeling, which is gaining every day, that this important subject should not be left to private companies, but become a department under the care of the county council to whom are relegated so many matters of public health. The greater part of our supply is taken from the Thames some twelve miles above London, and undergoes no other process of purification than that of filtration through successive layers of sand, varying from coarse gravel to finest sand. At the best it is evident that this method is only a variety of straining, and as the source is open to grave impurities little reliance can be placed upon it. The remaining portion of London's daily supply of 157,000,000 gallons is obtained from two sources, viz., from wells in the chalk of Kent and from rivers originating from springs in Hertfordshire. Most of the large London breweries have sunk artesian wells and have very good supplies of water. These wells are carried down below the clay to a depth of about 300 feet, when a thick stratum of chalk is encountered from which an excellent water is obtained. The analytical feature of this supply is the large quantity of free ammonia and almost total absence of albuminoid ammonia, nitrates, and nitrites. This is no doubt due to a process of reduction which at present is unexplainable. Warington, in his researches on nitrification, has shown that soil is capable always of converting ammonia into nitrites and nitrates if phosphates be present. This is due to two organisms, each acting separately, the one converting ammonia into nitrites, the other oxidizing nitrites into nitrates. Several of the wholesale drug firms have wells on their premises, but, as they are not artesian and only derive their supply from surface water, they are not much used. The health statistics of the city, however, do not show much cause for alarm, although the general purity of our supply, according to analytical data, is not equal to the Croton water. Thus the supply of the New River Company yields the following:

| | |
|---|---|
| Chlorine | 1.62 |
| Nitrites | 0 |
| Nitrogen in nitrates | 0.19 |
| Free ammonia | 0 |
| Organic carbon | 0.35 |
| Hardness | 17.08° |

These results are expressed in parts per 100,000. Perhaps the chief noticeable difference is with regard to the nitrogen as nitrates, where the Croton water is vastly superior. I may mention that results are usually given in water analysis on this side of the Atlantic in grains per gallon, according to the recommendation of the Society of Public Analysts.

A considerable change in the present method of conducting the qualifying examination for pharmacists has been foreshadowed by the president of the Pharmaceutical Society. As noticed in your columns, the syllabus of subjects has recently been considerably extended, and now it is proposed to divide the examination into two

parts. By this means a candidate will be examined on the first day in practical subjects alone, as practical dispensing, pharmacy, and chemistry. If a man passes these subjects he would the next day be examined in the remaining subjects of botany, materia medica, and theoretical pharmacy *vivâ voce*. At the same time it is proposed that the major examination, for the title of pharmaceutical chemist, shall be partly in writing and partly practical. There can be no doubt whatever that these proposals are immense improvements on the present methods, where in the minor examination a candidate is examined in no less than six subjects in one day. The physical ordeal has always been felt to be too trying, and I have noticed men almost fainting from the strain of excitement and absence of food. There is a tendency also to reduce the high standard of the major examination, so as to induce more minor men to go in for the higher qualification.

Prof. McFayden, who has succeeded Dr. Klein, F.R.S., in one of his appointments, has just published his method of obtaining and staining the tubercle bacilli. A little scraping from the diseased part is placed on a cover glass and pressed even and thin by means of another cover glass. The glasses are then separated, and after drying in the air a short time it is passed rapidly through the flame of a spirit lamp, which coagulates the albumen. The glass is then dropped into a test tube full of Ziehl-Neelsen's stain, previously heated, and after ten minutes removed and dipped quickly into diluted sulphuric acid (1 part of strong acid to 3 parts of water). It is then washed with water and finally rinsed in alcohol (60 O. P.), and when dry may be mounted on the usual slide with a drop of Canada balsam in xylol or benzol. Under a good lens magnifying at least 400 times, the bacilli will be found colored bright magenta, with a delicate pink background in the albuminous film. This method has some advantages over the usual double-stain method with magenta and methyl blue, but which is very successful. The greatest difficulty in my experience is not so much the staining as the recognition afterwards. In many tissues, sputa, etc., the bacilli are quite absent, although the presence of tubercles is apparent, and in all cases a high power with adequate substage condenser is necessary. Thus bacilli of anthrax can be plainly seen with a ⅙ inch dry objective, but this is quite useless for tubercle bacilli. It is, however, well and clearly seen when present, after staining, with a $\frac{1}{12}$ inch oil-immersion lens and an achromatic condenser.

On this subject there is an interesting case recorded this week in one of our medical papers. A man died rather suddenly, and the post-mortem indicated a serious heart affection, but a section of the lung, when stained and mounted, showed numerous bacilli of anthrax. There was no possible theory of previous contact with anthrax, and the learned medico leaves it as a puzzle. It appears rather unfortunate that from only one microscopical examination this bacillus should have been designated anthrax, as possibly further examination with other stains, etc., would have demonstrated some radical difference between the two species.

### London Market Report.

MINCING LANE, November 11th, 1891.

The past month has been very quiet, and there are very few improvements in value to note. Ergot has shown a steady increase; ipecacuanha, jalap, and chillies are all dearer. The new crop of saffron has arrived and is undoubtedly very fine, but the large yield this year will inevitably reduce prices. Opium is being firmly held, there being plenty of buyers at 1.92, but holders are asking 2.10. Advice from Asia Minor indicates that large sales have taken place in Talequali opium at about 1.74, chiefly for the Dutch Government and American markets. Codeia is dearer, but morphia is slightly easier. The cinchona sales, which included some 1,450 bales of Ceylon and East India barks, were featureless, the unit remaining unaltered at 1½.

The chemical market has been very flat, tartaric acid receding and copper sulphate lower. Others unchanged in value and poor demand, but syndicate's prices firmly maintained for soda compounds.

The following are current prices:

| | | | | | |
|---|---|---|---|---|---|
| Acid, Citric | per lb., | $0.34 | Mercury, Calomel, | per lb., | $0.54 |
| Oxalic | " | .07 | Corrosive Sublimate | " | .60 |
| Tartaric | " | .26 | Potash, Cyanide | " | .52 |
| Bleaching Powder | per cwt., | 2.04 | Bichromate | " | .08 |
| Camphor, ref'd | per lb., | 0.35 | Chlorate | " | .11 |
| Cream of Tartar | " | .20 | Oil, Peppermint, H. G. H | " | 3.33 |
| Cinchona, red | " | .12 @ .20 | Morphia | per oz., | .90 |
| Bolivian | " | .10 @ .16 | Codeia | " | 3.0 |
| Copper, Sulphate, | per cwt., | 3.2 | Saffron (new) | " | .51 |
| Ergot, Spanish | per lb., | .48 | Soda, Bicarb. | per cwt., | 1.74 |
| Ipecacuanha | " | 2.26 | Caustic | " | 2.34 |
| Jalap | " | .42 | Crystal | " | .86 |
| Mercury | " | .42 | | | |

### NEBRASKA.

THE Board of Examiners of the Nebraska State Board of Pharmacy met at the Capitol Building, Lincoln, November 11th, 1891, and reorganized by the election of the following officers for the ensuing year: Max Becht, Omaha, president; W. D. Hallar, Blair, and M. E. Schultz, Beatrice, vice-presidents; James Reed, Nebraska City, treasurer; Henry D. Boyden, Grand Island, secretary. The president appointed the following committees: On Finance, Hallar and Shultz; on Violations of Law, James Reed; on Printing and Supplies, Boyden, Reed, and Becht. The subjects for examination were assigned as follows: Practical Pharmacy, James Reed; Theoretical Pharmacy, W. D. Hallar; Materia Medica, H. D. Boyden; Toxicology, Max Becht; Chemistry, M. E. Shultz.

At a meeting of the Examiners held the same day, the following members of the Board were present: J. E. Riggs, Lincoln; Max Becht, Omaha; W. D. Hallar, Blair; James Reed, Nebraska City; and Henry D. Boyden, Grand Island. Thirty-three applicants were present and examined, of whom the following-named persons were successful in passing the examination and received certificates as registered pharmacists: Frank Alley, Louisville; J. V. Beghtol, Friend; W. A. Brokaw, Cedar Bluffs; J. C. Brown, York; C. W. Dodson, Tecumseh; H. T. Davis, Chadron; J. W. Hooper, Upland; C. F. Holt, Friend; Ekie Jones, Friend; F. H. Jones, Springview; W. K. Johnson, Randolph, Frank Nevins, Exeter; Mrs. S. Royds, Ansley; H. B. Redmon, Henderson; D. J. Rusicka, Dodge, W. H. Seip, Lincoln; Albert L. Steidl, Crete; H. H. Traver, Palmyra; G. A. Thompson, Poma; I. W. Haughey, Elmwood.

All pharmacists who have changed their address are requested to report the same at once to the secretary. The Board adjourned to meet at Omaha, February 9th, 1892, in the parlors of Hotel Dellone, and at Lincoln, February 10th, 1892, in the State House.

HENRY D. BOYDEN, Sec.

GRAND ISLAND, NEBRASKA, November 12th, 1891.

**Membership in the American Pharmaceutical Association** is obtained only by election at the annual meeting. "Every pharmacist and druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, and those teachers of pharmacy, chemistry, and botany who may be specially interested in pharmacy and materia medica," are eligible for membership. For blank application and further information address Dr. H. M. Whelpley, 2729 Washington avenue, St. Louis, Mo., chairman of the Committee on Membership.

**Correction.**—The papers by Messrs. Peck, Adams, Ashley, and Bird, of which we printed abstracts on page 328, were prepared, not as theses, but for presentation at the meeting of the Michigan State Pharm. Association. We received this information too late to insert it.

**A Pasteur Institute in Cochin China.**—A Pasteur Institute was opened at Saigon, on June 1st, under the auspices of the French Government. Though primarily intended for the practice of anti-rabic inoculation, the work of the institute will extend over the whole field of microbiology.